

What is claimed is:

1 1. A method for fabricating a Fiber Bragg Grating
2 element, comprising:

3 (a) providing a mask having a predetermined pattern
4 and a wafer, wherein a light-guiding channel
5 filled with light-guiding substance is formed
6 on the wafer, and a photoresist layer is formed
7 on the wafer;

8 (b) adjusting the magnification of a
9 photolithography apparatus to a first Mag. and
10 transferring the predetermined pattern on the
11 mask to the photoresist layer on the wafer to
12 form a first pattern; and

13 (c) removing the light-guiding substance not covered
14 by the photoresist layer so that the first
15 pattern is transferred to the light-guiding
16 channel thus forming a Fiber Bragg Grating
17 element, which picks out the light of a
18 specific wavelength.

1 2. The method as claimed in claim 1, wherein the
2 mask comprises a glass substrate.

1 3. The method as claimed in claim 1, wherein the
2 predetermined pattern is made of Cr.

1 4. The method as claimed in claim 1, further
2 comprising:

3 (d) adjusting the magnification of the
4 photolithography apparatus to a second Mag. so

5 that the predetermined pattern is transferred
6 to the photoresist layer to form a second
7 pattern, wherein the second Mag. is not equal
8 to the first Mag., and the first pattern and
9 the second pattern are formed on the light-
10 guiding channel without overlapping one
11 another;

12 wherein the first pattern and the second pattern are
13 simultaneously transferred in step (c) to the light-
14 guiding channel on the wafer.

1 5. The method as claimed in claim 1, wherein the
2 first Mag. is a positive integer or a non-positive
3 integer.

1 6. A planar light circuit, formed on a wafer,
2 comprising:

3 a light-guiding channel, formed on the surface of
4 the wafer; and

5 a plurality of Fiber Bragg Grating elements formed
6 in series in the light-guiding channel, and the
7 Fiber Bragg Grating elements contain
8 corresponding patterns similar to each other,
9 but different in sizes.

1 7. The planar light circuit as claimed in claim 6,
2 wherein the Fiber Bragg Grating elements corresponds to
3 lights of a plurality of wavelengths, and the difference
4 between one wavelength and adjacent wavelength is less
5 than 10 nm.

1 8. The planar light circuit as claimed in claim 6,
2 wherein the Fiber Bragg Grating elements correspond to
3 lights of a plurality of wavelengths, and the difference
4 between one wavelength and adjacent wavelength is less
5 than the one of the bandwidths of the Fiber Bragg Grating
6 elements.

1 9. The planar light circuit as claimed in claim 6,
2 wherein the Fiber Bragg Grating elements combined as an
3 equivalent Fiber Bragg Grating element comprises an
4 equivalent notch wavelength and an equivalent bandwidth,
5 wherein the equivalent bandwidth is greater than any one
6 bandwidth of the Fiber Bragg Grating elements.